REMARKS

A. Status of the Claims

Claims 24-31, 33-39, and 41 are currently pending. No amendments are presented in this paper. No new matter was introduced.

B. Section 102 Rejections to Claims 33, 34, and 41

Claims 33, 34 and 41 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,858,439 to Xu *et al* ('439 patent). Applicants respectfully traverse.

1. The Xu Reference Is Not Prior Art

The pending application properly claims priority to U.S. Provisional Patent Application Serial No.: 60/211,515, which was filed June 14, 2000. *See* 37 C.F.R. § 1.53(c)(3). The cited Xu Reference (the '439 patent) was filed on October 10, 2000 and is a continuation-in-part application of pending U.S. Patent Serial No. 09/636,104 ('104 application) filed on August 10, 2000, which discloses the binding partners for manipulating moieties in a microfluidic system. *See* the '439 patent, column 27, lines 55-61. Additionally, while both the '439 patent and the '104 application are continuation-in-part applications of U.S. Patent Application Serial No.: 09/399,299, now U.S. Patent No.: 6,355,491 ('491 patent) filed on September 17, 1999, the '491 patent fails to provide disclosure regarding the dielectric properties of a microparticle, for example, admixing with the sample a plurality of engineered microparticles, each microparticle having a different dielectric property, as recited in claim 33. Therefore, because the '439 patent and the '104 application were not filed until after the provisional filing date of the pending application (June 14, 2000), they are not prior art against the claims.

Thus, in light of the foregoing comments, Applicants respectfully request the withdrawal of the § 102 rejections to 33, 34, and 41.

2. Addressing the Office's Position with Regard to Claims 33 and 41

The Office alleges that the microparticles used to separate moieties of a sample "must inherently have different dielectric properties." *See* page 4 of the Office Action mailed November 16, 2005. The Office further alleges that "distinguishing between the dielectric

properties must be inherently achieved in order to isolate the different moieties of interest. *See id.* Applicants respectfully traverse.

The cited Xu reference recognizes the difficulties using "dielectrophoresis and traveling wave dielectrophoresis to separate moieties from other components of a sample if different components of a sample have similar dielectric properties." (Column 16, lines 8-12). In order to overcome this, the cited Xu reference discloses providing a sample solution which comprises "compounds in addition to those that contribute to the selective *modification of a dielectric property of one or more moieties* in the sample." (Column 26, lines 48-51. Emphasis added). The cited Xu reference also discloses providing a sample solution for modifying components of the sample for *allowing the separation of at least one moiety of the sample. See* column 27, lines 4-28. Therefore, the moieties of the sample can independently be separated with or without the presence of a microparticle.

Applicants note that a claim is inherently anticipated **only** if "the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295 (Fed. Cir., 2002) (citations omitted). In the cited Xu reference, microparticles having a different dielectric properties are not necessary because the object of the invention, *i.e.,* the separation of moieties, can be achieved by adding a sample solution.

For at least these reasons, Applicants respectfully assert that the Office's contentions that the microparticles disclosed in the cited Xu reference must inherently have different dielectric properties are erroneous.

Applicants therefore request that the current anticipation rejection to claims 33 and 41, and their respective dependent claims, be withdrawn.

C. Section 103 Rejections

1. Claims 36-39 Are Not Rendered Obvious

Claims 36-39 stand rejected as being obvious over U.S. Patent No. 5,922,537 to Ewart *et al.* (the Ewart reference) in view of U.S. Patent No. 5,653,859 to Parton *et al.* (the Parton reference). Applicants respectfully traverse.

Claim 36 is not obvious over Ewart in view of Parton at least because not every element of claim 36 is recited in either Ewart or Parton. Claim 36 recites a method for detecting a complex within a sample, the method comprising:

(a) admixing with the sample a linking element and an engineered microparticle comprising a conductive core and an insulating layer coating the conductive core, the insulating layer having a thickness sufficient to render the engineered microparticle maneuverable by dielectrophoresis;
(b) associating the engineered microparticle with a target analyte to form the complex, the complex having a second dielectric property; and
(c) detecting the complex by distinguishing between the first and second dielectric properties using one or more impedance sensors.

The Office admits that the Ewart reference fails to teach or suggest at least element (a) of claim 36. *See* page 6 of the Office Action mailed 11/16/06. The Office alleges that the passage on column 9, line 25 through column 10, line 15, and FIGS. 1-3 and 11 of the Parton reference satisfies the deficiencies. The cited passage relates to a method for binding a microparticle to a polymer bead. **Nowhere** in this passage, or in the Parton reference, is there any teaching or suggestion of admixing with the sample a linking element and an engineered microparticle comprising a conductive core and an insulating layer coating the conductive core, the insulating layer having a thickness sufficient to render the engineered microparticle maneuverable by dielectrophoresis. Therefore, the Parton reference does not satisfy the missing elements admitted of the Ewart reference.

Further, the Office alleges that element (b), associating the microparticle and the target analyte, is inherently taught in the Ewart and Parton references. *See* page 12. The Office contends that since the Ewart reference allegedly teaches detection and the Parton reference allegedly teaches distinguishing dielectric properties of a complex and an unbound dielectric particle, element (b) of claim 36 must be performed. However, neither the Ewart reference nor the Parton reference teaches or suggests, **explicitly or inherently**, associating the microparticle and the target analyte to form a complex, the complex having a second dielectric property. The Office's unsupported conclusion that element (b) is inherently disclosed is erroneous.

Applicants further note that in order to preclude patentability under 35 U.S.C. § 103, there *must be some predictability of success in any attempt to combine elements of reference processes.* The view that success would have been "inherent" cannot substitute for a showing a

reasonable expectation of success. *In re Rinehart,* 531 F.2d 1048, 189 U.S.P.Q. 143, 148 (C.C.P.A. 1976).

For at least the reasons provided above, Applicants respectfully request that the current rejection to claims 36-39 be withdrawn.

2. Claims 24-31 and 35 are Not Rendered Obvious

Claims 24-31 and 25 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the anticipation reference in view of U.S. Patent No. 6,219,137 to Vo-Dinh. The subject matter relating to the "self-assembled monolayer," which was deemed allowable by the Office, is now withdrawn because the Office claims that the Vo-Dinh reference allegedly teaches this limitation. *See* pages 9-10 of the Office Action mailed on 11/16/06. Applicants respectfully traverse.

The Office suggests that the particles of the Xu reference can be modified with the nanoprobes of the Vo-Dinh reference, and that such combination would teach or suggest the claimed invention. However, the proposed modification would change the principle operation of the Xu reference. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 UAPQ 349 (CCPA 1959). MPEP 2143.01.

The Vo-Dinh reference provides nanoprobes to be delivered into biological, chemical, or physical structure *to provide surface-enhanced Raman (SER) emission. See* Summary of the Invention, discussing the object of the invention. In one respect, the nanoprobe is suited to "detect trace quantities of toxic chemicals and related biological indicators...as intracellular self-contained sensors." (Column 2, lines 35-39). In contrast, the Xu reference discloses that the choice of microparticles is related to specific manipulation details of moieties. *See* column 28, lines 24-32. A nanoprobe that provides SER emission and is a sensor to detect characteristics of organisms would not aid in the separation of moieties desired in the Xu reference.

Further, the Office has failed to establish a *prima facie* case of obviousness, which requires:

(1) there must be some suggestion or motivation, either in the References themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;

(2) there must be a reasonable expectation of success; and

(3) the prior art reference (or references when combined) must teach or suggest all the claim limitations.

With regards to prong (1), there is no motivation to combine the disparate technologies of the Xu and Vo-Dinh references, nor has the Office pointed to any reasonable basis to suggest otherwise. As noted above, Applicants assert that the unsupported proposed modification of the Office would change the principle operation of the Xu reference.

Further, the Office has not shown or argued the required reasonable expectation of success, as required by prong (2). Applicants respectfully submit that there is nothing in the Xu and/or Vo-Dinh references that demonstrate a reasonable expectation of success surrounding the significant modification of the Xu reference discussed above. In particular, there is nothing in the record to suggest admixing with the sample a linking element and an engineered microparticle comprising a conductive core and an insulating layer coating the conductive core, the insulating layer comprising one or more self-assembled monolayer layers and having a thickness sufficient to render the engineered microparticle maneuverable by dielectrophoresis, as recited in claim 24.

Additionally, while the Office assert that the combination of the Xu reference and the Vo-Dinh reference teaches or suggests the limitation of claim 24, the Office has failed to demonstrate that every limitation is disclosed, as required by prong (3). For example, the Office has not pointed to specific passages or figures in either the Xu or Vo-Dinh references that would teach or suggest associating the engineered microparticle with a target analyte to form the complex.

Applicants respectfully request the withdrawal of the rejections to claims 24-31 and 25 for at least the above reasons.

D. Conclusion

All pending claims are believed to be in condition for allowance. Should the Examiner have any questions, comments, or suggestions relating to this application, he is invited to contact the undersigned attorney at (512) 536-3018.

Respectfully submitted,

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Date: February 16, 2006